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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,989	01/31/2001	Hideki Morishima	2369.12210	2633

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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
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CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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<b>Office Action Summary</b>	Application No. 09/772,989	Applicant(s) MORISHIMA ET AL.	
	Examiner Audrey Y. Chang	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |



## DETAILED ACTION

### *Remark*

- This Office Action is in response to applicant's amendment filed on November 24, 2003, which has been entered.
- By this amendment, the applicant has amended claims 1, 8, 11, 14, 15, 17-19, 21 and 22 and has newly added claims 23 and 24.
- Claims 1-5, and 7-24 remain pending in this application.
- The objections to claims 1-5 and 7-22 set forth in the previous Office Action are withdrawn in response to applicant's amendment.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 17-18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Ezra et al (PN. 5,703,717) in view of the patent issued to Mashitani et al (PN. 5,663,831).**

Ezra et al teaches a *three dimensional display apparatus* that is comprised of a *spatial light modulator* (23, Figure 7), serves as the *image display element* for displaying a *spatially multiplexed 2D images* having stripes of image for different view points, a *lenticular screen* (42) placed in front of the image display element and an *angular amplifying element* (33) having a *first lenticular lens array* (34) for focusing the image at a *plane diffuser* (35) and a *second lenticular lens array* (36) for converging the image light passes through the plane diffuser to *different viewing locations*, (please see Figures 4 and 7, columns 4-5). The *lenticular screen* (42) and the *first lenticular lens array* (34) together serve as the



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*second optical member* that condenses the stripe image to the plane diffuser and the *second lenticular lens array* (36) serves as the *first optical member* for directing the image light to viewing zone. The distance between the lenticular lens array (34) and the diffuser (35) is equal to the **focal length** of the lenticular lens array (34), (please see Figure 4). The lenticular lens array (34) is a *vertical* lenticular lens having periodic arrangement in the *horizontal plane*, (i.e. the plane of the page of Figure 4). The lenticular screen (42) implicitly forms the images of pixels on the plane diffuser in order for the three dimensional display apparatus to be operable. Ezra et al teaches that the stripes of images for different view points are displayed on the spatial light modulator in an *interlaced* manner.

**Claim 17 has been amended** to include the feature concerning the first optical member being a lenticular lens having a periodic structure in horizontal direction and having a plurality of elementary optical elements that each constitute one period of the periodic structure in the horizontal direction and the lenticular lens of the first optical member is at a distance of the focal length of the elementary optical element from the mask. Ezra et al teaches specifically that the second lenticular lens array (36, serves as the first optical member), is a lenticular lens array having a *periodic* structure in the *horizontal* direction and each lenticular lens forming a period of the periodic structure. Furthermore, Ezra et al teaches specifically that the second lenticular lens (36) is placed at the *focal distance* (of each lenticular lens) from the plane diffuser, (please see Figure 4).

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the plane diffuser has a mask pattern of openings and shields. However it is known in the art that a plane diffuser that placed in front of the display element *essentially* has a mask pattern of openings and shields as demonstrated by the teachings of Mashitani et al wherein a diffusing plate (3, Figure 5) has a mask pattern of black regions and opening regions (i.e. images forming regions). It would then have been obvious to one skilled in the art to make the plane diffuser of Ezra et al with mask pattern



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for the benefit of blocking unwanted light from the display to the observer, which therefore improves the image quality.

**Claims 18-21 have been amended.** With regard to claim 18, Ezra et al teaches that the first and second lenticular lens arrays have optical power in the horizontal direction. With regard to claim 20, Ezra et al teaches that the spatial light modulator (23, Figure 7) serves as the *image display element* for displaying a *spatially multiplexed* 2D images having stripes of image for different view points. With regard to claim 21, the focal distance of lenticular lens array (34) for the second optical member is different from the distance between the array and the image display element, (i.e. the spatial light modulator 23).

#### ***Allowable Subject Matter***

3. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered, none has disclosed a stereoscopic image display method that is comprised of the step of guiding image light from an image display element by a *second* optical system, placed in front of the display element, to a *mask* member having a mask pattern, and the step of converging the image light passes through the mask member by a *first* optical system to an observation surface. The second optical system has predetermined periodic structure in *each of horizontal and vertical* directions, *respectively*, in the order from the light incident side, wherein the second optical system comprises a *plurality of elementary optical elements* forming the periodic structures in the horizontal and vertical directions *respectively* and has an optical action in the horizontal and vertical directions, *respectively*, that are different from each other.

#### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759



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F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-5 and 7-24 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 13, 15-25, 27-33 and 35-38 of copending Application No. 09/836,368. Although the conflicting claims are not identical, they are not patentably distinct from each other because for the following reasons: The instant application and the co-pending application both disclose a stereoscopic image display that is comprised of an image display device for displaying synthesized images, a second optical system for directing and forming the images from the display device on light transmitting sections and light shielding second formed within an optical modulator or on a mask (having opening and shielding regions for passing or shielding the image light), and a first optical system for collecting the image light from the light transmitting sections to an observation surface, (please see Figure 1 of the instant application and Figure 1 of the co-pending application).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Response to Arguments***

6. Applicant's arguments filed on November 24, 2003 have been fully considered but they are not persuasive. The amended claims and the newly added claims have been fully considered and they are rejected for the reasons stated above.



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7. In response to applicant's arguments concerning the cited Ezra et al reference discloses a "conjugated relationship among elements" which therefore differs from the claim 17 of the instant application, the examiner respectfully disagrees for the reasons stated below. Firstly, the examiner really does not understand what exactly is the "conjugated relationships" referred here. Secondly, the examiner wishes to point out to the applicant respectfully that Ezra et al **specifically** teaches that the first lenticular lens array (34, Figure 4), which serves as the vertical lenticular lens of the second optical member and the second lenticular lens array (36), which serves as the first optical member, **each** is placed at a distance equals to **focal lengths** of the lenticular lens of each of the arrays, (i.e.  $f_1$  and  $f_2$ ). This is **exactly** the same relationship stated in claim 17 of the instant application. This reference therefore reads on the claims.

8. In response to applicant's arguments concerning the double patenting rejection, the examiner wishes to respectfully point out to the applicant that the pending claims 8, 9, and 10 of the instant application and the pending claims 18, 20 and 22 of the co-pending application 09/836,368 disclose the **identical** relationships among the display element, the first and second optical system and the mask, which pretty strongly suggests that the claims in the two applications are not patent ably distinct from each other.

### *Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action



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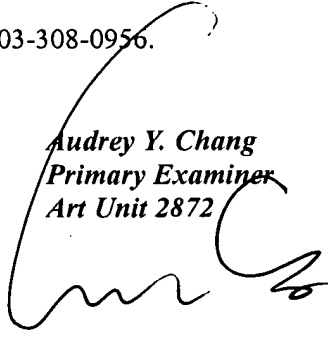
is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Audrey Y. Chang*  
*Primary Examiner*  
*Art Unit 2872*



A. Chang, Ph.D.